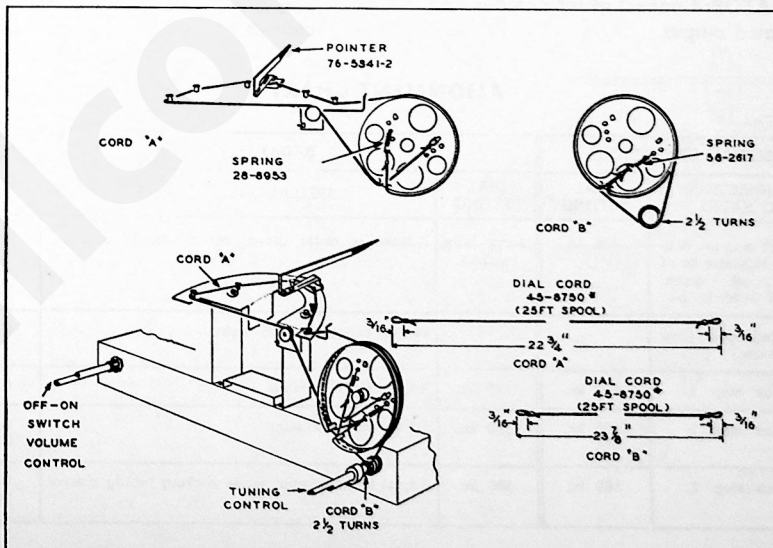


PHILCO RADIO MODELS 50-920, 50-921 AND 50-922

SPECIFICATIONS

CABINET	
Model 50-920	Molded plastic, mahogany and gray, wide-angle dial
Model 50-921	Molded plastic, ivory, wide-angle dial
Model 50-922	Molded plastic, maroon, wide-angle dial
CIRCUIT	
	6-tube superheterodyne
FREQUENCY RANGE	540—1620 kc.
AUDIO OUTPUT	1.2 watts
OPERATING VOLTAGE	105—120 volts, a.c. or d.c.
POWER CONSUMPTION	30 watts
AERIAL	Built-in, high-impedance loop; provision for connection of external aerial
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES (6)	7B7 r-f ampl., 7A8 converter, 7B7 i-f ampl., 14B6 det.—1st audio—a.v.c., 50L6GT output, 35Z5GT rectifier



TP9-636A

Figure 1. Dial-Cord Installation Details

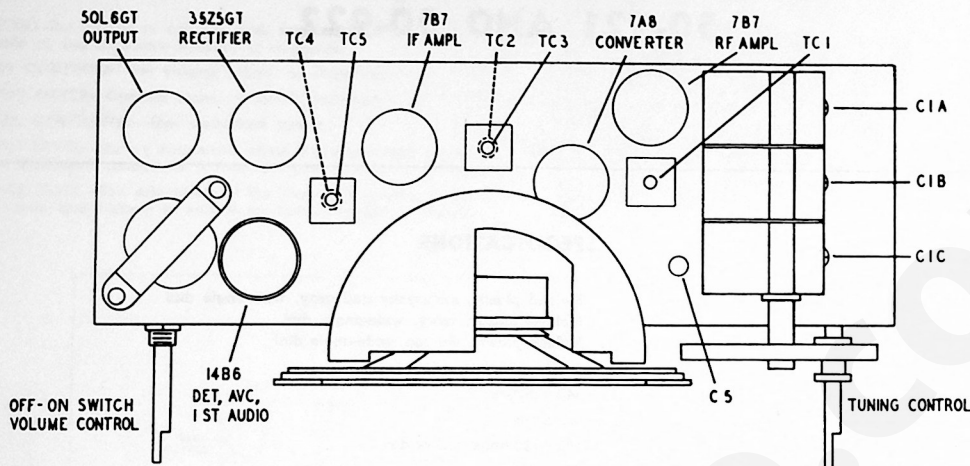


Figure 2. Top View, Showing Trimmer Locations

TP9-6368

ALIGNMENT PROCEDURE

DIAL POINTER: Turn tuning condenser to full-mesh position. Adjust pointer so that center of pointer carriage coincides with first scribe line from the left.

OUTPUT METER: Connect across speaker voice coil.

SIGNAL GENERATOR: Connect as indicated in chart. Use modulated output.

OUTPUT LEVEL: During alignment, attenuate signal-generator output to maintain an output-meter indication of 1.25 volts.

VOLUME CONTROL: Set to maximum.

NOTE: Run 1 sets have an i.f. of 265 kc. Otherwise alignment is as indicated.

CRITICAL DRESS: The green lead from the osc. section of C1 to C5 must be dressed away from the chassis, with all excess under the chassis.

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO		ADJUST
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Through a .1- μ f. condenser to stator of r-f section of gang. Ground lead to B.	455 kc.	Gang fully meshed.	Adjust, in order given, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC3—1st i-f sec. TC2—1st i-f pri.
2	Radiating loop. (See note below.)			Preset 1/2 turn from tight.	C5—osc. series
3	Same as step 2.	1620 kc.	1620 kc.	Adjust for maximum.	C1B—osc. shunt
4	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum.	C1C—r-f C1A—aerial
5	Same as step 2.	580 kc.	580 kc.	Adjust for maximum while rocking tuning control.	C5—osc. series TC1—r-f core
6	Repeat steps 3 and 4.				

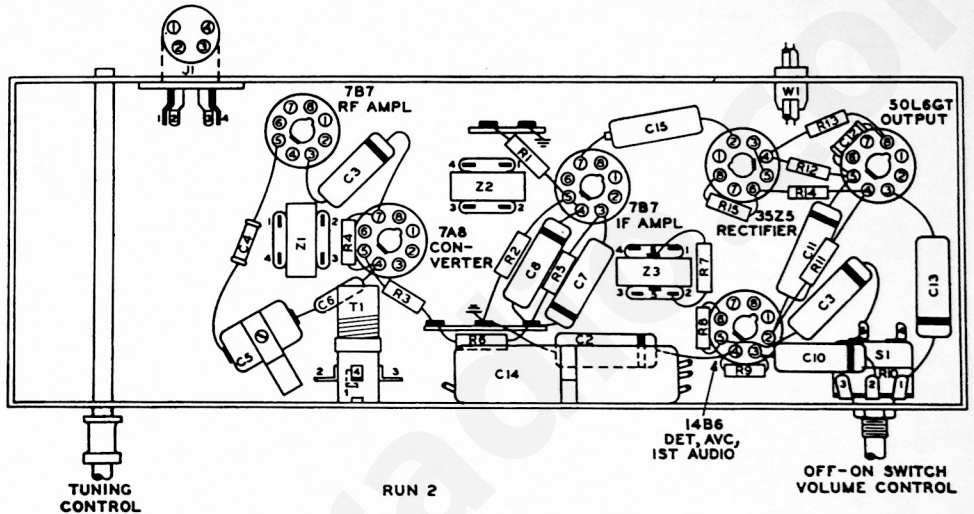
RADIATING LOOP: Make up a 6—8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop aerial. The loop aerial must be connected to the radio.

PRODUCTION CHANGES

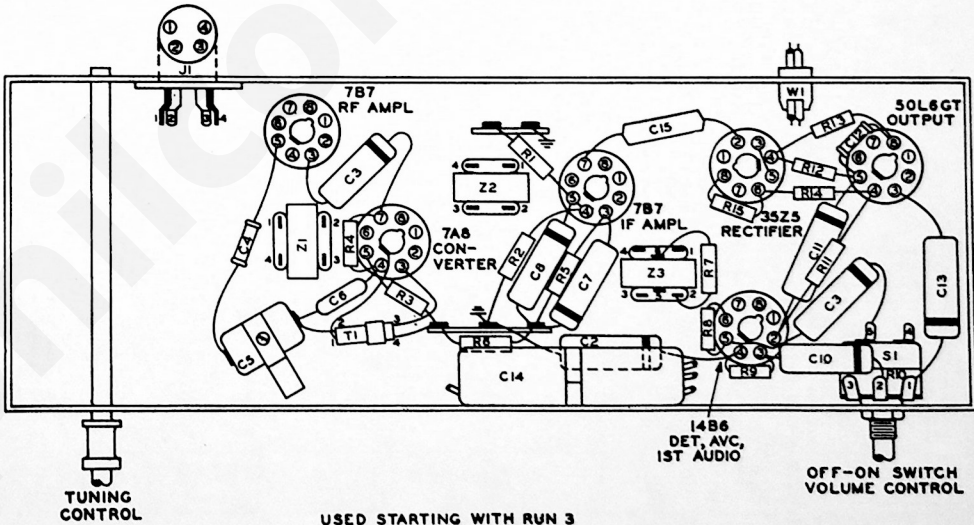
Run 2: I.F. changed from 265 kc. to 455 kc.

Run 3: Oscillator coil, T1, changed from Part No. 32-4190-6 to Part No. 32-4263-3. This change was to save space only; the latter, Part No. 32-4263-3, should be ordered in either case.

Run 4: Condenser C4 changed in value from 20 μ f., Part No. 30-1224-56, to 13 μ f., Part No. 30-1224-68, to insure proper padding at 1620 kc.



TP9-436C



TP9-436D

Figure 3. Symbolized Chassis, Showing Parts Placement

REPLACEMENT PARTS LIST

NOTE: Part numbers marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
C1	Condenser, tuning, 3-section	31-2748-1
C1A	Condenser, trimmer, aerial	Part of C1
C1B	Condenser, trimmer, osc.	Part of C1
C1C	Condenser, trimmer, r-f	Part of C1
C2	Condenser, by-pass, .1 μ f.	61-0113*
C3	Condenser, screen by-pass, .01 μ f.	61-0120*
C4	Condenser, fixed trimmer, temperature comp.	
C5	Condenser, padder, osc. series	31-6473-17
C5	Condenser, d-c blocking, 47 μ f.	
C7	Condenser, screen by-pass .01 μ f.	61-0120*
C8	Condenser, neutralization .006 μ f.	45-3500-7*
C9	Condenser, a-v-c filter, .05 μ f.	61-0122*
C10	Condenser, d-c blocking, .01 μ f.	61-0120*
C11	Condenser, d-c blocking, .01 μ f.	61-0120*
C12	Condenser, by-pass, 220 μ f.	62-122001001
C13	Condenser, tone compensation, .02 μ f.	61-0108*
C14	Condenser, electrolytic, 3-section	30-2575-27
C14A	Condenser, filter, 30 μ f., 150v	Part of C14
C14B	Condenser, filter, 40 μ f., 150v	Part of C14
C14C	Condenser, filter, 40 μ f., 150v	Part of C14
C15	Condenser, line by-pass, .047 μ f.	
I1	Pilot lamp, 6-8v	34-2876
J1	Jack, aerial input	27-6214-1
LA1	Loop aerial, 50-920	
LA1	Loop aerial, 50-921 or 50-922	32-4052-40
LS1	Speaker, p-m, 4 in. by 6 in., oval	36-1833
P1	Loop-aerial plug	27-4788
R1	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R2	Resistor, leakage, 150,000 ohms	66-4158340*
R3	Resistor, drooping, 22,000 ohms	66-3228340*
R4	Resistor, grid return, 100,000 ohms	66-4108340*
R5	Resistor, screen drooping, 47,000 ohms	66-3478340*
R6	Resistor, decoupling, 1200 ohms	66-2128340*
R7	Resistor, i-f filter, 47,000 ohms	66-3478340*
R8	Resistor, diode load, 2.2 megohms	66-5228340*
R9	Resistor, grid return, 3.3 megohms	66-5338340*
R10	Volume control, 500,000 ohms, with off-on switch	33-5566-13
R11	Resistor, plate load, 470,000 ohms	66-4478340*
R12	Resistor, grid return, 470,000 ohms	66-4478340*
R13	Resistor, cathode bias, 130 ohms	66-1128340*
R14	Resistor, filter, 1200 ohms, 1 watt	66-2124340*
R15	Resistor, filter, 220 ohms, 2 watts	66-1225340*
S1	Switch, off-on	Part of R10
T1	Transformer, oscillator	32-4263-3
T2	Transformer, output	32-8310-3
W1	Line cord	L-2183*
Z1	Transformer, r-f	32-4399-2A
Z2	Transformer, 1st i-f	32-4160A
Z3	Transformer, 2nd i-f	32-4240-3A

MISCELLANEOUS

Description	Service Part No.
Cabinet, 50-920 (mahogany)	
Cabinet, 50-920 (gray)	
Back	318-3020
Fastener, back (4)	W-2235FA9
Backplate, ornamental, mahogany cabinet	56-7426FCP
Backplate, ornamental, gray cabinet	56-7426-1FCP
Fastener, backplate mtg.	W-2235-1FA9
Baffle, cardboard	54-7938
Fastener, baffle mtg. (4)	W-2235-2FA9
Bezel, metal	56-7427
Speed nut, bezel mtg. (2)	1W60196FE7
Dial scale, mahogany cabinet	
Dial scale, gray cabinet	
Knob, mahogany cabinet (2)	54-4718-4
Knob, gray cabinet (2)	54-4718-7
Pointer	76-5341-1
Cabinet, 50-921	76-5378
Back	318-3021
Fastener, back (4)	W-2235FA9
Backplate, ornamental	56-7434
Fastener, backplate mtg.	W-2235-1FA9
Baffle, cardboard	54-7922
Fastener, baffle mtg. (4)	W-2235-2FA9
Dial scale	54-5071
Clip, dial mtg.	56-7808FE11
Knob (2)	54-4718-5
Pointer	76-5341-2
Cabinet, 50-922	10772
Back	318-3022
Fastener, back (4)	W-2235FA9
Backplate, ornamental	56-7435
Fastener, backplate mtg.	W-2235-1FA9
Baffle, cardboard	54-7919
Fastener, baffle mtg. (4)	W-2235-2FA9
Bezel, metal	56-7436
Speed nut, bezel mtg.	1W60196FE7
Dial scale	54-5072
Clip, dial mtg. (2)	56-7572FE11
Knob	54-4718-3
Pointer	76-5341
Backplate, pulley-and clip assembly	76-5233
Clamp, electrolytic mtg.	56-1466FA5
Dial cord, 25-foot spool	45-8750*
Spring gang drive	56-2617
Spring, pointer drive	28-8953
Drive shaft	76-3671-5
Bushing, drive shaft	27-9437
Spring, hairpin, drive shaft	57-1468FA3
Panel, wiring, external aerial	38-9837
Panel, wiring, 4-lug	38-9161-1
Plug, aerial, 4-pin	27-4788
Rubber mount, gang mtg. (4)	27-4771-1
Shield, tube, 14B6	
Socket, Loktal	27-6177
Socket, octal	27-6174
Socket assembly, pilot lamp	27-6233-18

CORRECTIONS TO PARTS LIST

Reference Symbol	Description	Service Part No.
C4	Condenser, fixed trimmer, temp. comp., 13 μ f.	30-1224-42
C8	Condenser, d-c blocking, 47 μ f.	60-00475417
C15	Condenser, line by-pass, .047 μ f.	45-3505-45
LA1	Loop aerial, (50-920)	32-4052-39
	*Cabinet, mahogany (50-920)	10770-2
	Dial scale, mahogany	54-5070-3
	*Cabinet, gray (50-920)	10770-3
	Dial scale, gray	54-5070-4
	Drive shaft (Codes 123 and 124)	76-3671-6
	Shield, tube, 14B6	56-1566FA5
	Socket, Loktal	27-6207

* If an old cabinet (Part No. 10770 or 10770-1) is being replaced by a new one (Part No. 10770-2 or 10770-3), a new dial scale and baffle-and-cloth assembly must also be ordered.

ADDITIONS TO PARTS LIST

Description	Service Part No.
Baffle-and-cloth assembly	40-7892
Clip, dial-scale mounting	56-7886FE7

PRODUCTION CHANGES

Code 121, Run 4

The tuning gang, C1, was changed from Part No. 31-2751 to Part No. 31-2748-1. Part No. 31-2748-1 should be used for all replacements, regardless of the code or run number.

Code 121, Run 5

The neutralization network in the i-f amplifier circuit was removed.

C7 and C8 were removed.

R6 was removed, and the B plus lead of Z3 was connected directly to the low side of R14.

R5 was removed, and the screen, pin 3, of the 7B7 i-f tube was connected to the screen, pin 5, of the 7A8 converter.

Code 122, Run 1

The 50L6GT tube was replaced by a 50C5, with the necessary wiring changes.

Code 122, Run 2

Same change as for Code 121, Run 5.

Code 122, Run 3

To reduce low-volume hum, the black wire from the 7B7 tube socket to the low (B-) side of the volume control, R10, was removed from the volume control and wired to the set side of the a-c switch.

Code 123, Run 1

The 35Z5GT tube was replaced by a 35Y4, with the necessary wiring changes.

Code 123, Run 2

Same change as for Code 121, Run 5.

Code 123, Run 3

Same change as for Code 122, Run 3.

Code 124, Run 1

The 50C5 tube was replaced by a 50B5, with the necessary wiring changes.

Code 124, Run 2

Same change as for Code 121, Run 5.

Code 124, Run 3

Same change as for Code 122, Run 3.